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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/801,351 | 03/07/2001 | Calvin D. Ostler | 5038.1 P | 4906 |

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EXAMINER

WILSON, JOHN J

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

3732

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/801,351 | OSTLER ET AL. | |
| | Examiner | Art Unit | |
| | John J. Wilson | 3732 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56, 103 and 104 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-56, 103 and 104 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8/19/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-10, 13-21, 25-27, 30-39, 43-48, 51-56, 103 and 104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao (6331111) in view of Mills et al (WO 99/16136). Cao shows a first substrate 702 and Fig. 7, cups 702a and Fig. 9, LEDs 701b and Fig. 9, electric wiring 704a and 704b, heat sink 402b, Fig. 4b and Fig. 12 (1203 and 1222) and control circuitry, Figs 1a and 1b. Cao does not show using a heat pipe between the substrate and the heat sink. Mills shows a heat pipe 45, pages 14 and 15, and Fig. 5, located between the LED substrate 48 and heat sink 51. It would be obvious to one of ordinary skill in the art to modify Cao to include a heat pipe as shown by Mills in order to better distribute the heat away from the source. While Mills further teaches that if required, additional cooling means 50 may be used. It would be further obvious to no use alternative 50 and to connect the heat sink 51 directly to the heat pipe as a matter of not using possible additional elements of Mills. As to claims 6 and 7, see reflective coating at column 9, lines 42-44, of Cao. As to claim 9, the use of silver for a reflective coating is well known and would have been an obvious matter of choice to the skilled artisan in the use of well known materials for a well known result. As to claims 13-16, the material used for the heat pipe is an obvious matter of choice in the use of well known heat transfer materials. As to claim 17, to use a base as an anode is well known and obvious to the

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skilled artisan. As to claims 18 and 19, see multiple wavelengths at column 1, lines 29-34, of Cao. The specific wavelengths used are obvious matters of choice in the degree of a known parameter to one of ordinary skill in the art. As to claim 38, see lens 1407 of Cao.

Claims 2, 22 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao (6331111) in view of Mills et al (WO 99/16136) as applied to claim 1 above, and further in view of Janzen et al (4893354). The above combination does not show the use of diamond substrate. Janzen shows a diamond substrate 25f, Fig. 7, column 4, lines 44-48. It would be obvious to one of ordinary skill in the art to modify the above combination to include using a diamond substrate as shown by Janzen in order to better mount the LEDs.

Claims 3, 4, 11, 12, 23, 24, 28, 29, 41, 42, 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao (6331111) in view of Mills et al (WO 99/16136) as applied to claim 1 above, and further in view of Kennedy (5420768). The above combination does not show a metal (aluminum) heat sink. Kennedy teaches forming heat sinks from metal, and specifically from aluminum, column 2, line 33. It would be obvious to one of ordinary skill in the art to modify Cao to include the use of aluminum to form the heat sink as shown by Kennedy in order to efficiently move the heat.

Claim Objections

The following minor informalities are noticed:

In claim 1, line 14, claim 21, line 12 and claim 38, line 16, "on" should be -- one --.

Information Disclosure Statement

The prior art cited on the IDS filed August 19, 2005 has not been considered because a copy of the reference has not been supplied.

Response to Arguments

Applicant's arguments filed August 19, 2005 have been fully considered but they are not persuasive. Applicant argues that because Cao places the heat sink 402a, 402b adjacent the light source 401, it must be for the purpose of avoiding thermal interference, and therefore, it would not be obvious to separate the heat sink from the light source. This argument is not agreed with because Cao does not teach any specific reason for placement of the elements, and because, Cao and Mills show two art known alternatives for locating such elements. It would be obvious to one of ordinary skill in the art to locate the elements in one of these art known alternatives. Applicant further argues that because heat pipes are not flexible, the flexibility of section 203 as taught by Cao would be compromised if the light pipe of Mills were combined. This argument is not agreed with because the assumption that light pipes must be rigid is not valid, see cited prior art to Sliwa, Jr. et al (5560362) which shows a flexible heat pipe 23, Fig. 5, and column 16, lines 32-60.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

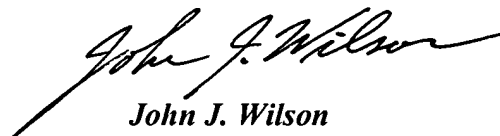
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Wilson whose telephone number is 571-272-4722). The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin P. Shaver, can be reached at 571-272-4720). The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John J. Wilson
Primary Examiner
Art Unit 3732

jjw
September 28, 2005